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1. Rejection of Claims 1-17, 20-36, 42, 43, 45-62, 64, 66,  
and 68-75 Under 35 U.S.C. §103(a) (15)

Reconsideration is requested of the rejection of claims 1-17, 20-36, 42, 43, 45-62, 64, 66, and 68-75<sup>1</sup> under 35 U.S.C. §103(a) as being unpatentable over Wang (U.S. 6,329,468) in view of Hall, Jr., et al. (U.S. 3,370,106).

Claim 1 is directed to a laminated structure comprising a non-woven substrate, at least one elastic strand, and a hot-melt adhesive bonding the non-woven substrate and elastic strand to one another. The hot-melt adhesive includes between about 50 and about 90 weight percent atactic polypropylene having a degree of crystallinity of less than about 20% and a number-average molecular weight between about 500 and about 40,000. The hot-melt adhesive also includes between about 5 and about 50 weight percent isotactic polypropylene having a degree of crystallinity of at least about 40% and a number-average molecular weight between about 3,000 and about 150,000. The hot-melt adhesive has a melt index between about 200 and about 1800 grams per 10 minutes and is hot-melt processable at less than about 450 degrees Fahrenheit.

Wang discloses a flexible polyolefin-based hot-melt adhesive composition useful in bonding nonwoven fabrics and elastic attachment applications in nonwoven disposable absorbent articles. The composition comprises a flexible polyolefin polymer, a tackifier resin, a plasticizer, and optionally a wax and a stabilizer. At most, the composition is 40% flexible polyolefin.

In contrast to the predominantly isotactic chain

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<sup>1</sup>Applicants note that claims 1-10, 13-30, 33-57, and 60-76 are currently pending.

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configuration of isotactic polypropylene and the predominantly atactic chain configuration of atactic poly-alpha olefins, Wang's flexible polyolefin polymer for use in the adhesive is a blended polymer comprised of segments or blocks of regular isotactic structures that are interspersed by segments or blocks of atactic structures. Due to this configuration, Wang's flexible polyolefins are semi-crystalline with a crystallinity and melting point below those of isotactic polypropylene. The molecular structure of the flexible polyolefin leads to an unusual and desirable combination of physical and mechanical properties such as low density, low melting point, flexibility, softness and elasticity.

Wang fails to disclose or suggest a hot-melt adhesive composition comprising between about 50 and about 90 weight percent atactic polypropylene and from about 5 to about 50 weight percent isotactic polypropylene, fails to disclose or suggest the required crystallinity values for these components as set forth in claim 1, and fails to disclose or suggest the required molecular weights for these components as set forth in claim 1. These are required elements of claim 1 and are significant aspects of applicants' invention. Wang's hot-melt adhesive comprises a blended polymer made up segments or blocks of regular isotactic structure that are interspersed by segments or blocks of atactic structure. Wang's hot-melt adhesive is not prepared utilizing two separate polymers, one atactic, and one isotactic, but comprises a single, blended polymer.

Hall Jr., et al. disclose a hot-melt adhesive suitable for bonding two materials together such as a corrugated paper medium and a 50-pound kraft paper facer sheet to produce corrugated paper board. The hot-melt adhesive is also suitable for the

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fabrication of paper cartons<sup>2</sup>. The adhesive composition comprises 60 to 95 weight percent atactic polypropylene and 5 to 40 weight percent polyethylene or isotactic polypropylene. The atactic polypropylene has a molecular weight of 15,000 to 60,000 and the isotactic polypropylene has a molecular weight of up to about 500,000, and preferably 85,000 to 95,000.

X Hall Jr., et al. fail to disclose a non-woven substrate and an elastic strand as required by claim 1. Apparently recognizing the shortcomings of the references alone, the Office attempts to find each and every element of claim 1 through a combination of these references. Regardless of whether the combination of references shows each and every element of claim 1, such a combination is improper as discussed herein and cannot properly be made to reject claim 1, or any other pending claims.

In establishing a *prima facie* case of obviousness to render a claim unpatentable, MPEP §2142 requires, *inter alia*, that the Office must show some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine reference teachings to arrive at applicants' claim. The mere fact that references can be combined or modified to arrive at the claimed subject matter does not render the resultant combination obvious, unless the prior art also suggests the desirability of the combination.

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<sup>2</sup>In column 1, lines 36-38 Hall Jr., et al. disclose that the hot-melt adhesive composition may be used for bonding wood, paper, plastics, textiles, and other materials. As discussed more fully below, this reference fails to suggest or disclose that the disclosed adhesive composition could be used to bond a non-woven substrate to an elastic strand as required in claim 1.

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In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).<sup>3</sup>

To show the required motivation to combine the cited references, the Office states: "Therefore, motivated to produce a hot-melt adhesive suitable for use in textile bonding..." However, the question regarding motivation is not whether one skilled in the art is motivated to produce a hot-melt adhesive for use in textile bonding<sup>4</sup>, but is whether one skilled in the art of hot-melt adhesives and reading Wang would be motivated to substitute for the polymeric material used in Wang (single block polymer blend comprising intermittent segments of atactic and isotactic polymers) the polymeric materials (separate atactic polypropylene and isotactic polypropylene polymeric materials) disclosed in Hall Jr., et al. A close reading of Wang clearly indicates that one skilled in the art would not have been so motivated and, without applicants' disclosure as a blueprint (which the Office had the benefit of utilizing), such a

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<sup>3</sup>Applicants note that the Office, in the final Office action, states that despite Wang's teachings to improving a polypropylene based hot-melt adhesive consisting of a blend of isotactic and atactic polypropylene such as the one disclosed by Hall Jr., et al., obviousness may exist although the teachings relied upon may be disclosed in the art as non-preferred or unsatisfactory for the intended use. Although this may be true, the MPEP requires that there must first be shown a motivation to combine the references before obviousness can be found. It is this motivation to combine the references that is lacking in the instant case.

<sup>4</sup>Applicants assert that if this were the requirement for motivation, any and all references setting forth hot-melt adhesives, for any purpose, could be properly combined to reject applicants' claim 1. This is clearly not the case.

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combination would not have been made.<sup>5</sup>

As noted above, Wang simply teaches the use of a single block blend polymeric material (referred to as a flexible polyolefin) which has segments or blocks of regular isotactic structure that are interspersed by segments or blocks of atactic structure, along with at least two other components. Noting that the flexible polyolefin has a "unique" molecular structure, Wang notes numerous improvements as compared to conventional atactic and isotactic polymers. Additionally, and critically, Wang discusses, in numerous paragraphs in columns three and four, the shortcomings and limitations of hot-melt adhesives comprising atactic and isotactic polymers in place of the flexible polyolefins. For example, in column 3 lines, 37-47 Wang states that hot-melt adhesives comprising atactic polypropylene generally have poor cohesive strength, poor heat resistance, low elevated temperature peel and low shear values. Significantly, Wang further states:

yes, but not blend or single (FPO)  
no uns segments & both

"[Atactic polypropylenes] have not found much use in disposable nonwoven applications where a combination of high bond strength at very low

<sup>5</sup>MPEP §2142 further provides that in order to reach a proper determination under 35 U.S.C. 103, the Examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. Knowledge of applicants' disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences." The tendency to resort to "hindsight" based upon applicants' disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

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coating weight and easy processability by spray techniques mentioned above is required. [Atactic polypropylene] based adhesives usually lack such capability" Column 3 lines 42-47.

~~✗~~ Further, at column 4 lines 13-19 Wang states:

✓  
"As noted above, [atactic polypropylenes] differ significantly from [flexible polyolefins] used in the present invention in both molecular structure, average molecular weight, physical and mechanical properties. These prior art [atactic polypropylene] adhesives are formulated for applications other than for disposable nonwovens products and usually lack sprayability. Emphasis added.

Additionally, at column 4 lines 55-60 Wang states:

~~✗~~ "The compositions of the present invention have overcome the shortcomings of the prior art amorphous poly-alpha-olefins and block copolymer based adhesives and provide excellent heat stability, improved cohesive strength, low viscosity, and good adhesion to a variety of substrates and good processability with conventional coating equipment."

7 ~~✗~~ One skilled in the art and reading the Wang reference would actually be taught or guided away from claim 1 of the present

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*12 he takes away from only atactic hot blend?*

invention and from looking at any reference that suggests or teaches a combination of atactic polypropylene and isotactic polypropylene as Hall Jr., et al. do.<sup>6</sup> Wang clearly sets forth the shortcomings of hot-melt adhesives comprising isotactic polypropylene and atactic polypropylene and specifically states that such compositions are formulated for applications other than for disposable nonwoven products because such compositions lack basic characteristics required for suitable use, such as thermal stability and cohesive strength. Because Wang teaches squarely away from the teachings in Hall Jr., et al. of a hot-melt adhesive comprising atactic polypropylene, one skilled in the art would not, and could not, have been properly motivated to look at the Hall et al. reference after reading the Wang reference. With all due respect, it appears that the Office has used improper hindsight analysis and reconstruction when combining the Wang and Hall, Jr., et al. references. The Federal Circuit has repeatedly cautioned against hindsight analysis and held that such practice is improper. Grain Processing Corp. v. American-Maize-Products, Co., 840 F.2d 902, 904 (Fed. Cir. 1988).

*but Wang does have segments of both*

In addition to the lack of motivation to combine the references, the Hall Jr., et al. reference is not relevant to claim 1. Hall Jr., et al. fail to disclose any hot-melt adhesive compositions suitable for bonding a non-woven material and an elastic strand as required by claim 1. As apparently recognized by the Office, Hall Jr., et al. fail to suggest or disclose that their hot-melt adhesive is suitable for bonding any type of

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<sup>6</sup>Applicants note that a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983).

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elastic member. As noted above, Hall Jr., et al. direct their hot-melt adhesive to bonding two materials such as corrugated paper and kraft paper. Additionally, Hall Jr., et al. use their hot-melt adhesive to fabricate paper cartons. A close reading of the examples reveals that the hot-melt adhesive is intended for use with kraft paper, a heavy paper product.

In trying to show the relevance of the Hall Jr., et al. reference to claim 1, which requires the hot-melt adhesive to bond a non-woven substrate and an elastic strand, the Office states that Hall Jr., et al. do disclose that the hot-melt adhesive disclosed therein is suitable for textile use. The Office is apparently equating the term "textile" as used by Hall Jr., et al. to a non-woven substrate and elastic strand to show the relevance of the Hall et al. reference:

"With regard to the lack of an explicit teaching by Hall, Jr. et al. to use the hot-melt adhesive to bond elastomeric materials to various substrates, Hall, Jr. et al. does teach that the hot-melt adhesive is suitable for textile use." See Final Office Action, Paragraph 5.

However, the term "textile" is defined in Webster's Dictionary (1995 Edition) as woven or being capable of being woven. As mentioned above, the hot-melt adhesive of Hall Jr., et al. is primarily for use on kraft paper, a woven product. Hall Jr., et al. make no mention of the suitability of their hot-melt adhesive for use on non-woven materials or elastic strands. Additionally, the products as disclosed by Hall Jr., et al. such as kraft paper and paper cartons, are rigid, inflexible materials



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not designed to stretch or bend. In direct contrast, the hot-melt adhesive of claim 1 is specifically designed to provide benefits in these areas for non-woven substrates. Based on the foregoing, claim 1 cannot be said to be obvious in view of the cited references.

Claims 2-10 and 13-20 depend from claim 1 and are patentable for the same reasons as claim 1 as set forth above, as well as for the additional elements they require.

Claim 21 is directed to a laminated structure comprising a first non-woven elastic substrate, a second non-woven substrate and a hot-melt adhesive bonding the first non-woven elastic substrate and the second non-woven substrate to one another. The hot-melt adhesive includes between about 50 and about 90 weight percent atactic polypropylene having a degree of crystallinity of less than about 20% and a number-average molecular weight between about 500 and about 40,000. The hot-melt adhesive also includes between about 5 and about 50 weight percent isotactic polypropylene having a degree of crystallinity of at least about 40% and a number-average molecular weight between about 3,000 and about 150,000. The hot-melt adhesive has a melt index between about 200 and about 1800 grams per 10 minutes and is hot-melt processable at less than about 450 degree Fahrenheit.

Claim 21 is similar to claim 1 and is patentable for the same reasons as claim 1 set forth above, as well as for the additional elements it requires.

Claims 22-30 and 33-47 depend from claim 21 and are patentable for the same reasons as claim 21 set forth above, as well as for the additional elements they require.

Claim 48 is directed to a laminated structure comprising a first elastomeric substrate, a second substrate and a hot-melt

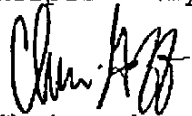
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adhesive bonding the first elastomeric substrate and second substrate to one another. The hot-melt adhesive includes between about 50 and about 90 weight percent atactic polypropylene having a degree of crystallinity of less than about 20% and a number-average molecular weight between about 500 and about 40,000. The hot-melt adhesive also includes between about 5 and about 50 weight percent isotactic polypropylene having a degree of crystallinity of at least about 40% and a number-average molecular weight between about 3,000 and about 150,000. The hot-melt adhesive has a melt index between about 200 and about 1800 grams per 10 minutes and is hot-melt processable at less than about 450 degree Fahrenheit. Claim 48 is similar to claim 1 and is patentable for the same reasons as claim 1 as well as for the additional elements it requires.

Claims 49-57 and 60-76 are dependent upon claim 48 and are patentable for the same reasons as claim 48 set forth above, as well as for the additional elements they require.

In view of the above, applicants respectfully request favorable reconsideration and allowance of all pending claims. The Commissioner is hereby authorized to charge any fee deficiency in connection with this Letter to Deposit Account Number 19-1345 in the name of Senniger, Powers, Leavitt & Roedel.

Respectfully Submitted,



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